

Amendments to the Claims:

Please cancel claims 1-16 as presented in the underlying International Application No. PCT/EP2003/014214.

Please add new claims 17-29 as indicated in the listing of claims below.

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-16 (cancelled)

Claim 17 (new): A device for contactless electrical power transmission in a system including at least one stationary and one moving part, power being transmitted between the at least one stationary part and the at least one moving part, the device comprising:

an inductive transformer including a primary winding disposed on the stationary part and a secondary winding disposed on the moving part, the inductive transformer bridging an isolating point between the stationary part and the moving part;

a frequency generator having a series-resonant circuit capacitor connected to the primary winding; and

at least one actuator control element connected to the secondary winding and including a matrix arrangement of a plurality of switchable power semiconductors; wherein at least portions of the inductive transformer, frequency generator and at least one actuator control element are disposed in an area of a rotor shaft and a rotor head of a rotary-wing aircraft.

Claim 18 (new): The device as recited in claim 17, further comprising at least one capacitive actuator disposed in operative connection with the at least one actuator control element.

Claim 19 (new): The device as recited in claim 17, wherein the at least one capacitive actuator is disposed in at least one rotor blade of the rotary-wing aircraft.

Claim 20 (new): The device as recited in claim 17, wherein:

- a) the plurality of switchable power semiconductors include unipolar switchable power semiconductors configured to form an output voltage of the actuator control element with only one polarity of at least one output conductor; and
- b) the unipolar switchable power semiconductors are disposed in direction relative to the only one polarity of the output voltage and are configured to take up the output voltage as blockage voltage and to switch off the current from a positive one of the at least one positive output conductor to an alternating current input.

Claim 21 (new): The device as recited in claim 17, wherein the plurality of switchable power semiconductors include bipolar switchable power semiconductors configured to form an output voltage of the actuator control element with alternating polarity of output conductors, the bipolar semiconductors selectively blocking positive or negative voltages and switching off currents in both conduction directions.

Claim 22 (new): The device as recited in claim 18, wherein:

the actuator control element includes a regulator and a controller configured to impress positive and negative half-waves or half-wave segments of a higher-frequency alternating current into the actuator;

the regulator is connected the controller so as to form different-sized half-wave segments of the current using a magnitude signal as a function of a magnitude of the difference between a setpoint actuator voltage and an actual actuator voltage;

the regulator is connected to the controller so as to control the power semiconductors using a polarity signal as a function of a polarity sign of the difference between the setpoint actuator voltage and the actual actuator voltage, in such a way that, when the polarity sign of the difference is negative, a successive charge or power is withdrawn from the actuator from one half-wave to the next and, when the polarity sign of the difference is positive, a successive charge or power is supplied to the actuator from one half-wave to the next.

Claim 23 (new): The device as recited in claim 22, wherein:

- a) the actuator control element includes a plurality of generating devices and the

controller for impressing half-waves or half-wave segments of the alternating current into the actuator is connected to the generating devices so as to generate switching grid signals of a switching grid synchronized with the alternating current;

b) the controller includes a logic device configured to form conductive area signals of an initial position of pairs of the switchable semiconductors connected in series using the switching grid signals;

c) the controller includes a shift advance device configured to advance a shift of conductive areas of a switch pair relative to the initial position during a rectifier operation and the controller includes a shift lag device configured to subtract a shift of the conductive areas of the switch pair relative to the initial position during an inverter operation;

d) the controller is connected to the regulator so as to supply the polarity signal so as to set a direction of the shift and the magnitude signal so as to set the magnitude of the shift.

Claim 24 (new): The device as recited in claim 17, wherein the at least one primary winding is disposed on a stationary part of a rotor shaft bearing, and wherein the secondary winding is disposed on the rotor shaft and corresponds to the primary winding.

Claim 25 (new): The device as recited in claim 24, further comprising an azimuth sensor disposed on the rotor shaft and having an output connected to the actuator control element.

Claim 26 (new): The device as recited in claim 17, further comprising:

an aerodynamically effective device actuated by the capacitive actuator and having an output connected to the capacitive actuator; and

at least one sensor disposed in an area of the rotor blade and configured to detect a position of the aerodynamically effective device

Claim 27 (new): The device as recited in claim 17, further comprising electrical controls and wherein the actuator control element and the electrical controls are disposed in the rotor head and are connected to the inductive transformer via lines disposed in the rotor shaft.

Claim 28 (new): A method to provide power of at least one capacitive actuator wherein the at

least one actuator is arranged on a moving part system that is separated from a stationary system by an isolating point, the method comprising:

- generating a higher-frequency alternating current from a direct voltage using a frequency generator disposed in the stationary system, the higher-frequency alternating current having an amplitude independent of a phase angle and of an amplitude of a reverse voltage;

- transmitting the alternating current from a primary winding of an inductive transformer that bridges the isolating point;

- separating the alternating current coming from a secondary winding of the inductive transformer in the moving part system into positive and negative half-waves or segments of these half-waves and always impressing the alternating current into the at least one actuator using an electronic control element in a direction such that a length change of the actuator occurs in a desired direction in each half-wave.

Claim 29 (new): A method to provide power of at least one capacitive actuator, the method comprising:

- generating a higher-frequency alternating current from a direct voltage using a frequency generator, the higher-frequency alternating current having an amplitude independent of a phase angle and of an amplitude of a reverse voltage;

- separating the higher-frequency alternating current into positive and negative half-waves or segments of these half-waves;

- always impressing the higher-frequency alternating current into the actuator using an electronic control element in such a direction that a length change of the actuator occurs in a desired direction in each half-wave.